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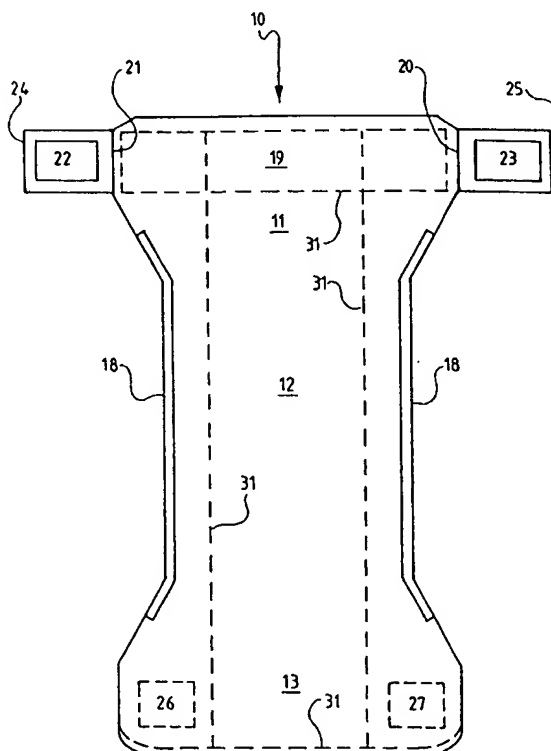
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(21) International Application Number: PCT/AU98/00847 (22) International Filing Date: 15 October 1998 (15.10.98) (30) Priority Data: 41865/97 15 October 1997 (15.10.97) AU 69864/98 3 June 1998 (03.06.98) AU (71)(72) Applicants and Inventors: REID, Tammy, Leigh [AU/AU]; 5 Hazelwood Court, Noosaville, QLD 4566 (AU). LOWCOCK, Jannett, Lee [AU/AU]; 5 Hazelwood Court, Noosaville, QLD 4566 (AU). (74) Agent: CULLEN & CO.; Level 12, 240 Queen Street, Brisbane, QLD 4000 (AU).		(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).  Published With international search report.

(54) Title: A NAPPY

(57) Abstract

A nappy having a wider front panel [11] extendible over a baby's front region, a narrower middle panel [12] extendible at least partially about the baby's legs, and a back panel [13] extendible over the baby's back region, characterised in that the front panel [11] has a waist band [19] containing a pair of fastening tabs [22, 23] which are releasably attachable to the back panel [13] and which face rearwardly, thereby making it more difficult for the baby to open the tabs.



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## TITLE

**A NAPPY**

## FIELD OF THE INVENTION

This invention relates to a nappy for babies and particularly to a  
5 nappy having releasable fastening tabs which are positioned to make the  
tabs more inaccessible to the baby (to reduce the possibility of the baby  
ripping open the tabs), to a nappy having an upper band or belt which  
supports the nappy in a better manner, and to a re-usable nappy.

## BACKGROUND ART

10 Nappies (also called diapers) are broadly of two types. The first  
type is the re-usable cloth nappy which is formed from a square of absorbent  
cloth and which can be cleaned and re-used. The difficulty with cloth nappies  
is that they do not readily hold solid or liquid waste material. Also separate  
safety pins are required to attach the nappy to the baby, and the pins can be  
15 an injury hazard notwithstanding that they are safety pins. These nappies  
are not waterproof and a separate plastic pilcher needs to be attached to  
provide a greater degree of security against leakage.

The second main type of nappy is a disposable nappy. This  
nappy has two layers being an inner absorbent layer and an outer  
20 impermeable layer. The nappy is formed from synthetic or fluff material.  
These nappies have a wider front panel extendible over a baby's front region,  
a narrower middle panel extendible at least partially about the baby's legs  
and a wider back panel extending over the baby's back region. This  
configuration of the nappy provides a good snug fit. These nappies have  
25 releasable tabs which are fixed to the rear panel member and which  
releasably attach to the front panel member.

A disadvantage with the current tab arrangement is that the tabs  
can be quite readily grasped by a baby and opened to dislodge the nappy.  
The tabs are not affixed to the nappy very strongly, and it is known for babies  
30 or mothers to inadvertently rip the tabs off the nappy

Another disadvantage with current nappies is that the nappies  
are insufficiently supported about the waist region which allows the nappy to

sag which in turn can cause discomfort to the baby.

Another disadvantage with disposable nappies is the considerable environmental hazard caused by large quantities of plastic nappies.

5 Another disadvantage with current disposable nappies is the complexity in manufacture and multi-layered nappies can have layers which irritate the baby's sensitive skin and which may have other disadvantages.

Another disadvantage with cloth nappies is that they take up considerable space on a clothesline and this can be a problem to people  
10 living in units or large families where drying space is limited.

#### OBJECT OF THE INVENTION

It is an object of the invention to provide a nappy which may overcome at least some of the abovementioned disadvantages or provide the public with a useful or commercial choice.

15 In one form, the invention resides in a reusable nappy having:  
a front panel extendible over a baby's front region, the front panel having a front edge and a pair of opposed side edges;  
a middle panel of a width smaller than the front panel and which is extendible at least partially about the baby's legs;  
20 a back panel extendible over the baby's buttocks;  
a unitary waist band of substantially constant width which extends entirely across the front panel and adjacent the front edge of the front panel, the waist band extending past the side edges of the front panel to form two oppositely extending tabs; and  
25 releasable fastening means on one side of each said tab which is able to releasably fasten to areas on the back panel.

The nappy may come in various shapes or sizes depending on the size of the baby.

It is preferred that the nappy is a re-usable nappy and therefore  
30 can be washed, soaked, sanitized and dried for re-use.

We prefer that the nappies are brightly coloured and that the colours are colourfast.

The nappy may be formed from a number of layers. In one form, the nappy can consist of an outer fabric layer which can be made of a rip stop material and which can be brightly coloured. The nappy may have a second layer immediately adjacent the outer layer. The second layer may be a fluid resistant layer or liner to reduce leakage through the nappy. It is preferred that the second layer is a polyester water-resistant lining. The nappy may have a third layer which may be positioned immediately adjacent the second layer. The third layer may comprise an absorbent material such as wadding, fluff, polymers, absorbent gels, non-woven fabrics and the like. Other types of absorbents are envisaged. The nappy may have a fourth layer. The fourth layer may be positioned immediately adjacent the third layer. The fourth layer may comprise a comfort layer such as a flannelette or similar type material to provide comfort against the baby's skin. The nappy may include elastic portions or areas and these are typically provided around the leg region to prevent leakage around this area.

The front panel of the nappy is provided with a pair of fastening tabs and in one form the fastening tabs can comprise releasable tabs such as Velcro™ tabs. Other types of releasable fastening tabs (such as press stick adhesives) are also envisaged. The tabs extend over and are releasably attached to the back panel of the nappy. If the tabs consist of a hook and pile system (of which Velcro™ is an example), the back panel contains hook or pile zones which mate with the hook or pile zones on the tabs.

The attachment arrangement is such that the tabs are rearwardly facing by which is meant that the free ends of the tab face about the baby's back region rather than the baby's front region. These rearwardly facing tabs are much more difficult for the baby to access and therefore there is much less chance that the tabs can be inadvertently ripped open by the baby. However, the tabs can be quite easily fastened and released by a parent or caregiver.

To improve the fastening ability of the tabs, it is preferred that the front panel has a formed band portion and that the tabs are attached to or integral with edges of the band portion. The band portion can provide

improved stiffness or reinforcement to the upper part of the nappy which facilitates attachment of the tabs to the back panel of the nappy.

This may be particularly relevant when the nappy is heavy with waste material.

5

#### BRIEF DESCRIPTION OF THE DRAWINGS

Embodiments of the invention will be described with reference to the following drawings in which

Figure 1 is a front view of an open nappy according to an embodiment of the invention.

10

Figure 2 is a plan view of the nappy attached about a baby.

Figure 3 is a view of a prior art nappy.

Figure 4 is a section view showing the various layers in the nappy according to an embodiment of the invention.

15

Figure 5 is a rear view of the nappy of Figure 1 but with a slightly different fastening configuration.

Figure 6 is a view of a flattened out nappy according to another embodiment and illustrating a variation to the fastening system.

Figure 7 illustrates a preferred stitching of the nappy.

Figure 8 illustrates the nappy of figure 7 in a use condition.

20

#### BEST MODE

Referring to the drawings and initially to Figure 1, there is shown a nappy 10. The nappy is a re-usable non-disposable nappy and has a wider front panel 11 which in use extends over a baby's front region, a narrower middle panel 12 which in use extends at least partially about a baby's legs, and a wider back panel 13 which in use extends over the baby's back and bottom region.

In the embodiment, nappy 10 is formed from a number of layers represented in Figure 4. The layers include a first outer layer 14. First outer layer 14 is made from a rip stop material and can be brightly coloured. The rip stop material prevents pilling. The rip stop material can be made from any suitable type of plastic material such as polyesters, rip stop nylons, and the like, these products being known in the art.

30

Immediately behind the first layer is a second layer 15. Second layer 15 is a water resistant liner to stop leakage through the nappy. The water resistant liner can be made from various suitable materials including polyesters, polyamides, and polyethylenes.

5                   Immediately behind second layer 15 is a third layer 16. Third layer 16 is an absorbent material. The absorbent material can be any type of absorbent material currently used in nappies and can include cotton wadding, or other absorbent materials including absorbent polymers, absorbent gels, impregnated liners (by which is meant liners impregnated with water  
10 absorbent powders, gels, fibres and the like). Immediately behind third layer 16 is a fourth layer 17. Fourth layer 17 is the layer contacting the baby's skin and is preferably made from a soft non-irritating material. Suitable material is a 100% cotton liner which has excellent breathing qualities.

Nappy 10 has elasticized portions 18 extending along edges of  
15 middle panel 12 and these function to make the nappy fit comfortably and snugly around the baby's legs to prevent leakage.

Front panel 11 is formed with an upper band portion or belt portion 19. The band portion 19 is formed from stiffer material than the rest of the nappy to provide this part of the nappy with a greater rigidity. Band  
20 portion 19 extends across an upper part of front panel 11 and has two opposed side edges 20, 21. Integral with the opposed side edges are fastening tabs 22, 23. Tabs 22, 23 have an inner edge attached to side edges 20, 21, and an outer free edge 24, 25. In the embodiment, tabs 22, 23 are formed from a hook and pile material such as Velcro™. It is preferred that  
25 each tab is formed from an outer smaller rough Velcro™ fastener and an inner larger smooth soft Velcro™ fastener. For washing purposes, the rough tab can be folded onto the smooth Velcro™ tab to prevent attachment to other garments in the wash. The wearer can get full use out of the nappy without the rough Velcro™ rubbing on the skin of the wearer. Changing the  
30 rough Velcro™ allows the belt to become longer without using more fabric for the actual belt. Back panel 13 has two corresponding Velcro™ patches 26, 27 to which tabs 22, 23 can releasably attach.



Figure 5 illustrates a variation where the back panel 13 has a long rectangular or other shaped strip 40 which is formed from smooth Velcro™. And which terminates with the rough Velcro™ tabs 26,27. This variation allows a greater degree of adjustment to be made to the nappy, and  
5 minimizes the amount of the rough part of the Velcro™ (which can stick to other garments). Of course, the tabs could be formed from other releasable material such as certain types of known releasable adhesives.

As illustrated in Figure 2, tabs 22, 23 face rearwardly by which is meant that the free edges 24, 25 face about the rear portion of the baby as  
10 illustrated in Figure 2. This makes it much more difficult for the baby to grasp the tabs and deliberately undo the nappy. This can be contrasted with the prior art arrangement illustrated in Figure 3 where tabs 29, 30 face forwardly and are much more easily grasped by a baby.

When the nappy is heavy and wet, upper band 19 functions to  
15 assist in preventing or reducing the possibility of tabs 22, 23 tearing away from patches 26, 27 due to the weight of the nappy. Band 19 can also function to provide an improved degree of comfort to the baby.

The nappy, by having the tabs at the back of the nappy, makes it more difficult for babies to peel off the tabs. The water-resistant liner 15 is  
20 built in so that no separate plastic pants are required. The nappy can be brightly coloured and the style of the nappy can be made eye catching and attractive.

Figure 6 illustrates a variation where a single strip of soft Velcro™ 41 is attached to the outside top back portion of the nappy and  
25 extending across from the raw edge of the outside fabric to the opposite raw edge. The strip is sewn directly to the outside of the fabric only, to avoid stitch lines in the waterproofing layer and the absorbent wadding.

In another variation to the nappy, the outer fabric and the inner linings are cut to the same size and shape. However the three layers of fabric  
30 (waterproofing) are not sewn all in one. The waterproofing is cut slightly larger than the inner and outer fabric but still has the same shape. The raw edge of the inner fabric is sewn on a cut-and-tuck interlocker and is then

attached to the waterproofing only. This is illustrated in Figure 6 numeral 42. The outer fabric 43 is then attached to the overhanging raw edge of the waterproofing. A waterproof barrier 43 (see Figure 7) is visible when the nappy is used.

- 5                   The wadding absorbent layer 16 can be raised or brushed flannelette, natural or synthetic fibres which can depend on price and availability.

- The nappy is re-usable and washable and therefore more environmentally friendly than disposable nappies. The nappy can be soaked  
10   in a nappy sanitizer without loss of colour. The nappy has a built in water-resistant liner to prevent leakage without the use of tight fitting plastic pants.

- The nappy does not require folding and is flat making it easier to pack into nappy bags without the bulk of typical reusable nappies. The nappy does not take up much space on the clothesline which can be a  
15   problem to people living in units or large families where drying space is limited.

- The absorbent layer 16 is kept in a rectangular shape and is sewn to the upper layer 17. The absorbent layer is kept within the rectangular zone illustrated in dotted outline in Figure 1 by numerals 31. The  
20   comfort lining 17 extends over the entire size and shape of the nappy.

                  The various layers 14 - 17 are all sewn together to form a single nappy product thereby doing away with the requirement for separate inner comfort liners or outer plastic pants.

- It should be appreciated that various other changes and  
25   modifications can be made to the embodiment described without departing from the spirit and scope of the invention as claimed.

## CLAIMS:

1. A nappy having:
  - a front panel extendible over a baby's front region, the front panel having a front edge and a pair of opposed side edges;
  - 5 a middle panel of a width smaller than the front panel and which is extendible at least partially about the baby's legs;
  - a back panel extendible over the baby's buttocks;
  - a unitary waist band which extends entirely across the front panel and adjacent the front edge of the front panel, the waist band extending
  - 10 past the side edges of the front panel to form two oppositely extending tabs; and
  - releasable fastening means on one side of each said tab which is able to releasably fasten to areas on the back panel.
2. The nappy of claim 1, wherein the releasable fastening means
- 15 comprises Velcro™.
3. The nappy of claim 2, wherein the waistband is of substantially constant width.
4. The nappy of claim 3, wherein the back panel has a elongate fastening strip extending across the panel and to which the releasable
- 20 fastening means can attach.
5. The nappy of claim 3, wherein the nappy is reusable.

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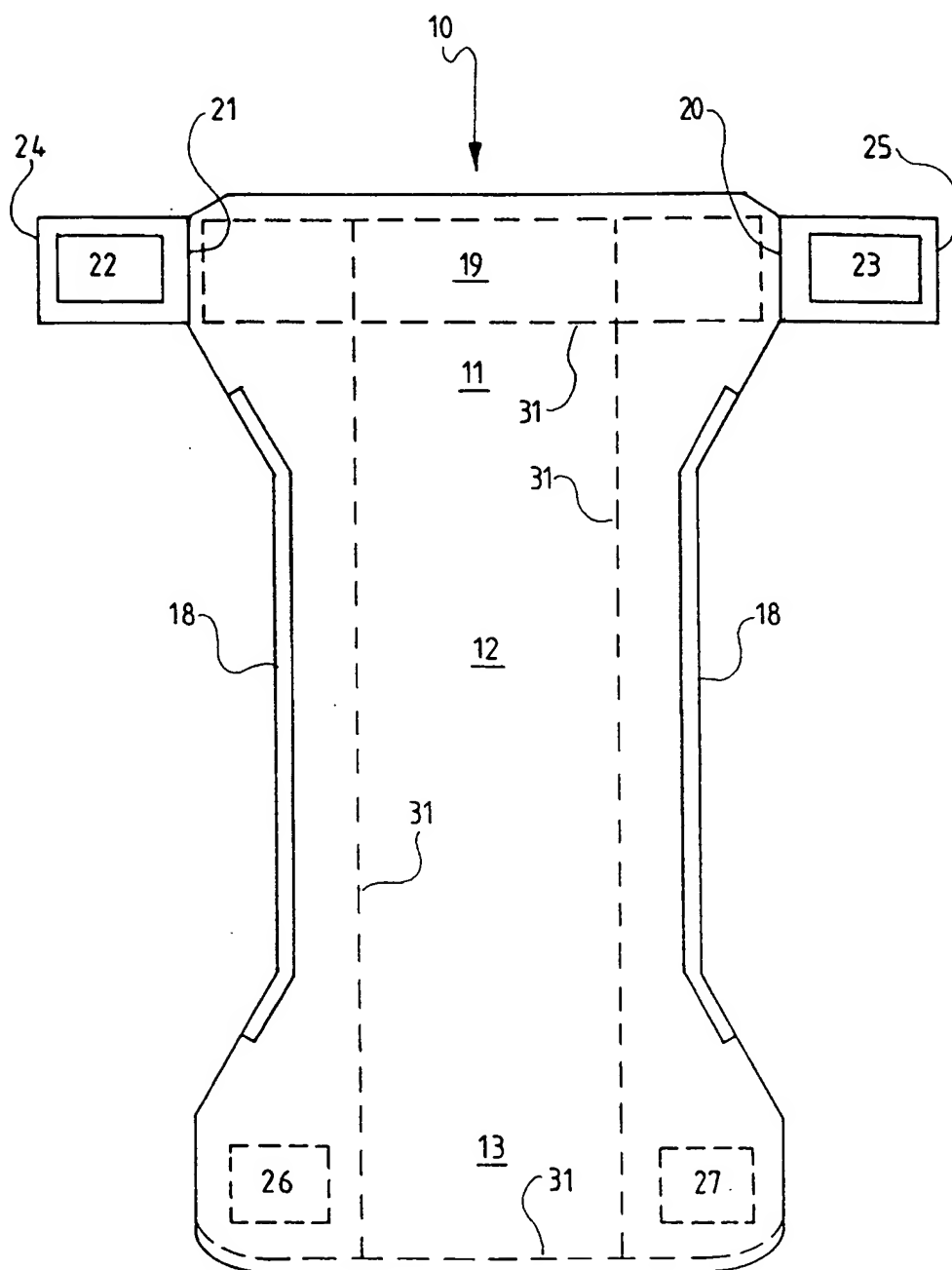


Fig.1

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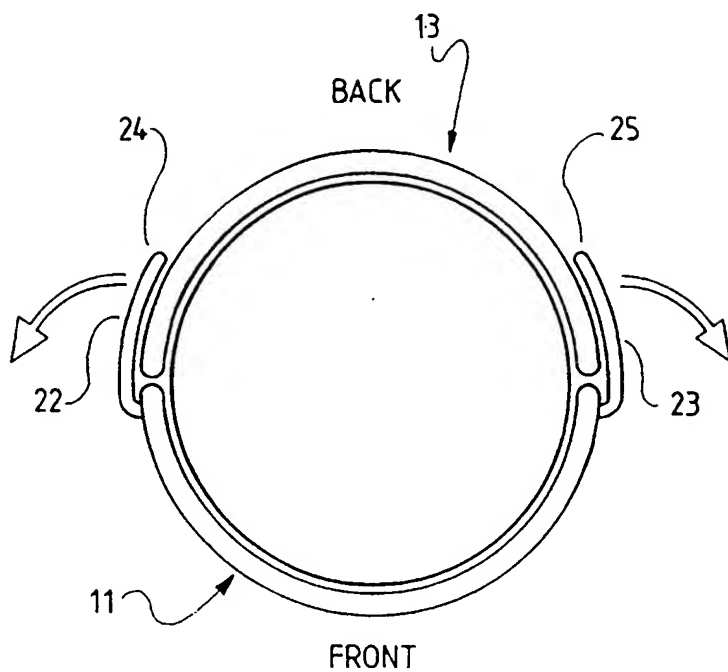
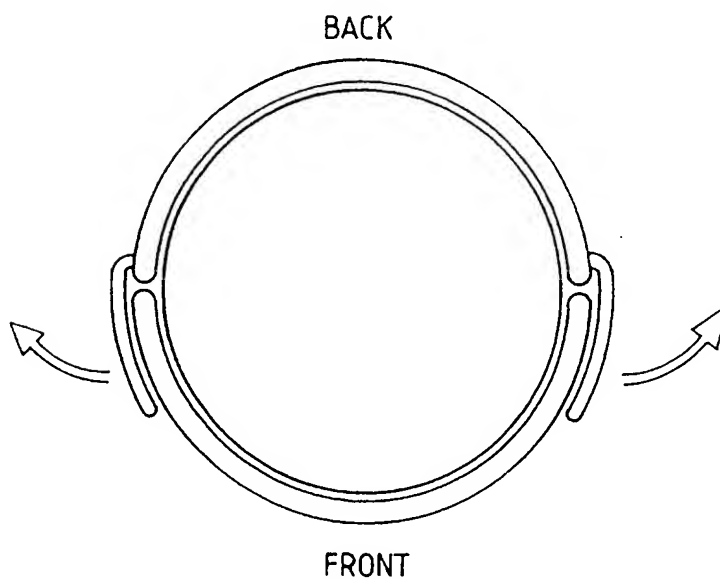


Fig. 2



PRIOR ART  
Fig. 3

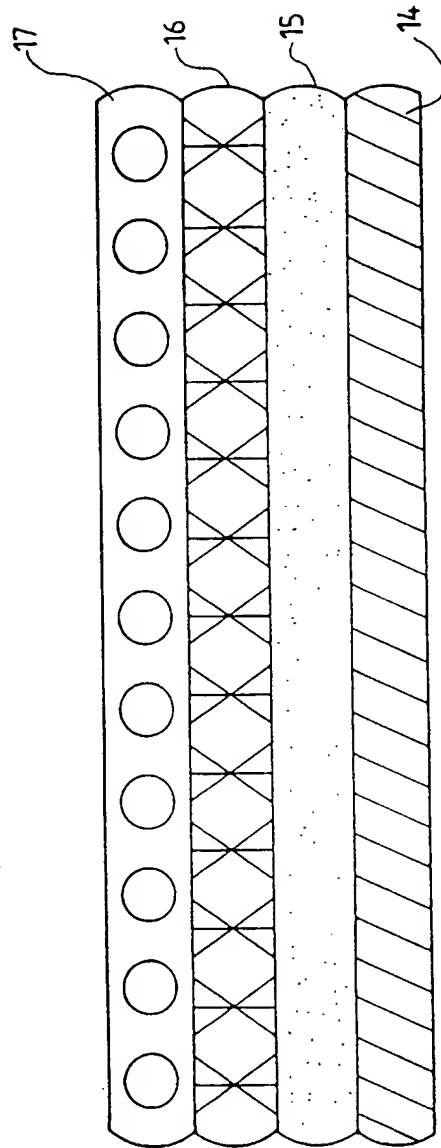


Fig. 4

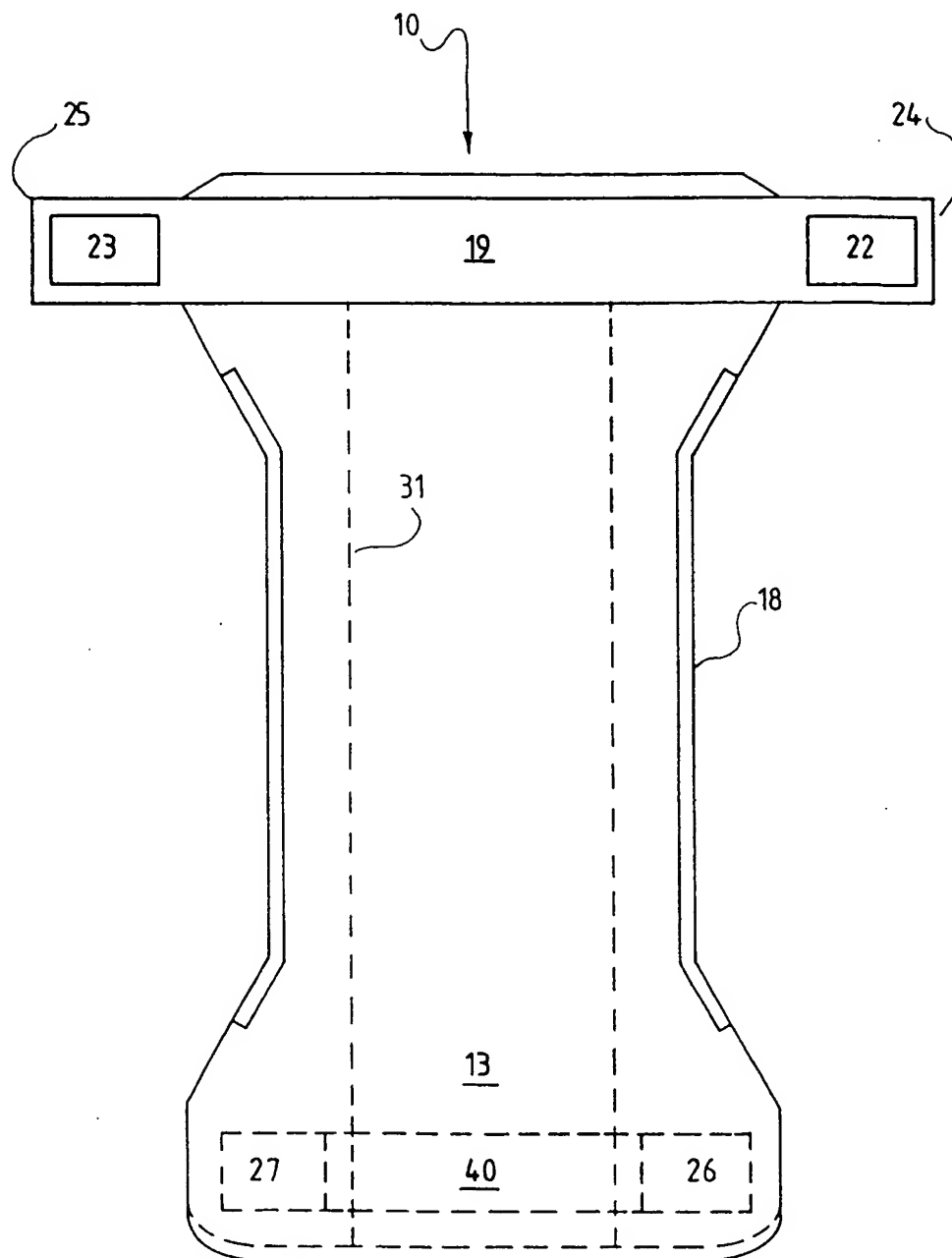
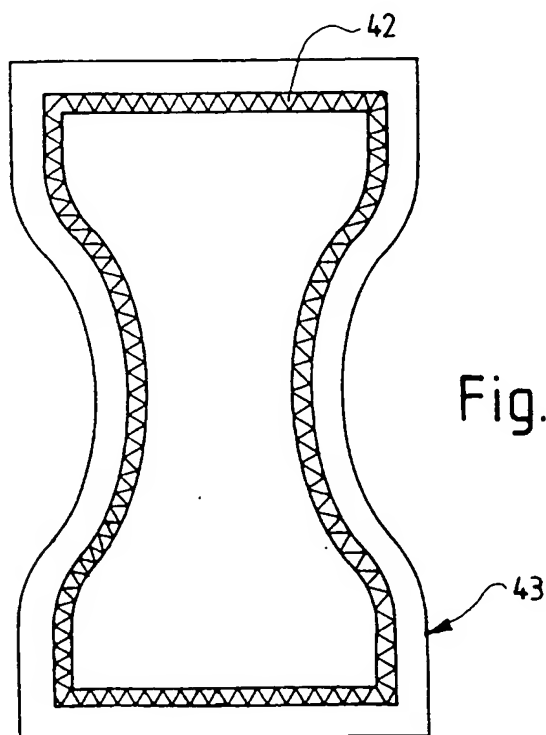
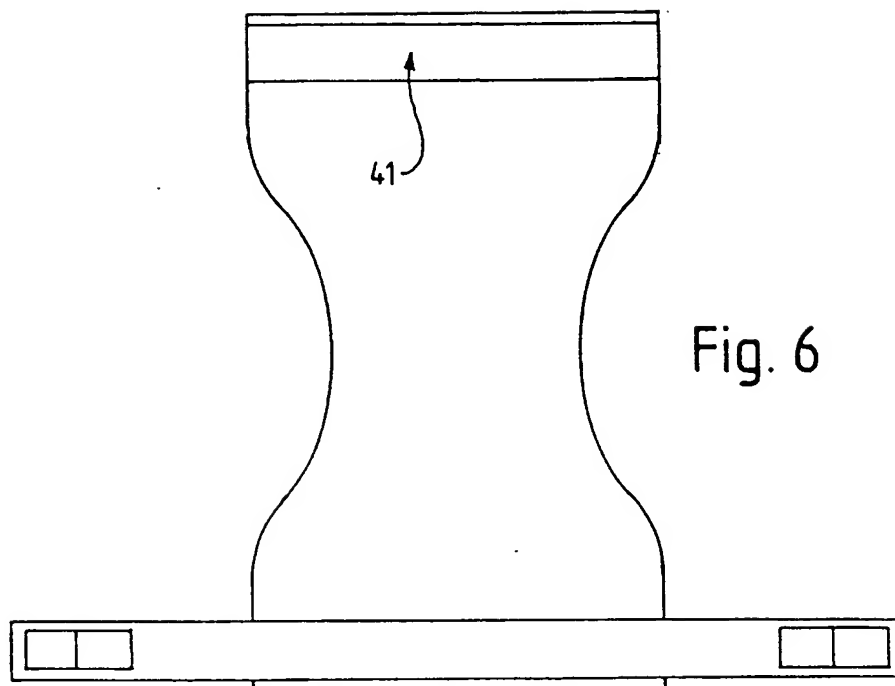


Fig. 5

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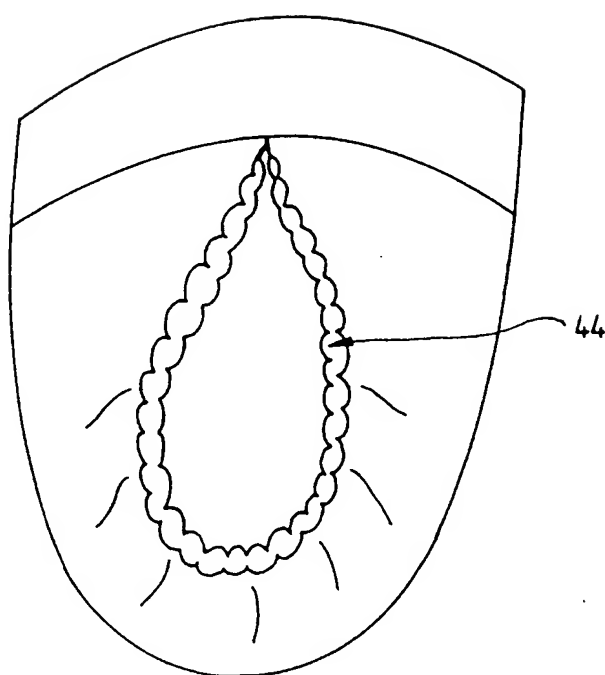


Fig. 8

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU 98/00847

<b>A. CLASSIFICATION OF SUBJECT MATTER</b>		
Int Cl <sup>6</sup> : A61F 13/56		
According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b>		
Minimum documentation searched (classification system followed by classification symbols) IPC A61F 13/-		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched AU:IPC as above		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) JAPIO nappy, nappies, diaper, fasten, tab, secur, continu, WPAT unitary, single, back, behind, rear, etc.		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 498612 A (BEPLATE) 12 August 1992 Columns 3, 4 and figure 1	1-5
Y	Columns 3, 4 and figure 1	1-5
Y	US 4978345 A (HOLLIDAY) 18 December 1990 Columns 3, 4 and abstract	1-3, 5
Y	JP 6063077 A (KAO CORP) 8 March 1994 Item 12	4
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International application No.  
**PCT/AU 98/00847**

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Patent Document Cited in Search Report				Patent Family Member			
EP	498612	AU	10638/92	CA	2060636	JP	6134001
		US	5221277	US	5403303	US	5370632
END OF ANNEX							